EPA RESPONSE SUMMARY

Air Quality Control Permit No. 1000383
for
Yarnell Mining Company

This Class I, unitary permit is issued to the Yarnell Mining Company, a subsidiary of Bema Gold (U.S.), Inc. (permittee) for the development and operation of an open-pit, gold mining operation. The Yarnell project site is situated one-half mile south of the town of Yarnell and one-quarter mile southeast of the Glen Ilah subdivision, as measured from the northwest boundary of the proposed project area to the southern boundaries of Glen Ilah and Yarnell. The project will consist of the open-pit mine, two waste rock areas, ore crushers, a heap leach pad, process ponds, an assay laboratory and a gold refinery plant. Electric power for the project will be provided by diesel powered generators with approximately 1,200 kilowatt capacity.

Drilling and blasting will occur in the pit, and the resulting ore and waste rock will be removed. Waste rock from the pit will be transported by haul trucks to two waste rock storage areas. Ore will be hauled to a stationary crushing facility, crushed to 80 percent minus 1½ inch size and mixed with lime. The crushed ore will be hauled to a conventional leach pad where a dilute sodium cyanide solution will be percolated through the ore for leaching. Gold will be recovered by carbon adsorption and stripping and refined by electrowinning and a Doré furnace. Molten bullion will be cast into doré bars. Mining, ore processing, waste rock storage, heap leaching and associated operations and support activities at the mining site will be sources of air pollutants. The principal pollutants will be particulate matter less than 10 micrometers in diameter (PM_{10}), oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2) and volatile organic compounds (VOCs). The mine also has the potential to emit small quantities of hydrogen cyanide (HCN) and mercury (Hg).

After the public review period, which closed on March 16, 1998. The proposed permit and supporting information were sent to Environmental Protection Agency (EPA), Region IX for review. This **SUMMARY** presents the Department's responses to the issues raised by the EPA in their August 6, 1998, August 12, 1998, and August 21, 1998 letters. The EPA comment, question or objection is summarized first as **(C)**. Each issue is then responded to as **(R)**. The issues that have resulted in revision to the permit are so indicated. The result of this process is the ADEQ decision to issue the Class I, Air Quality Control Permit No. 1000383 to the Yarnell Mining Company (YMC).

Responses to EPA's August 6, 1998 letter:

Comments on General Provisions (Attachment A):

C-1. Section VIII. Compliance Certification. The language in Subsection A should be amended as follows to capture the requirements of A.A.C. R18-2-309.2: "Permittee shall submit a certification of compliance with terms and conditions contained in the permit including emission limitations, standards, or work practices to the Director and to the EPA Administrator every 6 months, beginning 6 months subsequent to the permit issuance."

R-1. The suggested language has been included in the Section VIII of Attachment A of the final permit.

C-2. Section IX.B. Compliance Plan. There appears to be some confusion between a compliance certification required by A.A.C. R18-2-309.2 and a compliance plan required by A.A.C. R18-2-305.9. While the compliance certification must be submitted by the source atleast six months to EPA and ADEQ to verify compliance status, the compliance plan only requires submittal of report when the source is out of compliance certification section (VIII) as described in comment #1 above.

R-2. The above condition is deleted and revised condition VIII.B of Attachment A has been included in the final permit.

C-3. Section XIII.A. Excess Emission Reporting. The section states "A.A.C. R18-2-310 will become federally enforceable upon approval by EPA of the Department's Title V operating permits program or when A.A.C. R18-2-310 is approved by EPA for incorporation into the SIP, whichever comes first." EPA has given interim approval to ADEQ's title V program and has identified Rule 310 as needing amended before full approval can be given to ADEQ's title V program. While the interim approval is still in effect, Rule 310 is a part of ADEQ's title V program and applies to sources as stated in the rule. The statement in this permit condition is therefore, unnecessary and confusing and should be removed from the permit.

R-3. The suggested change has been included in the revised condition XII.A of Attachment A of the final permit.

C-4. Section XIII. Permit Deviation Reporting. Pursuant to the requirement for a compliance schedule in A.A.C. R18-2-309.5, and as agreed upon for previous ADEQ title V permits, a new section XIII.C should be added stating the following: "For any episode of noncompliance that is reported pursuant to XIII.A and XIII.B above, and that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated."

R-4. The suggested language has been included in the revised condition XII.D of Attachment A of the final permit.

C-5. Section XV. Reports. This condition misstates the cited requirement (R18-2-306.A.5.a). The condition should state: "Permittee shall submit reports of any required <u>monitoring</u> at least every 6 months. All instances of deviations from permit requirements shall be clearly identified in such reports. All required reports shall be certified by a responsible official consistent with R18-2-304.H and 309.A." In addition, in order to make the title V permit a clear listing of the sources's requirements (and as agreed upon in previous ADEQ title V permits), this section should list all the reporting requirements of this permit as follows: 1) Compliance certifications in accordance with Section VIII of Attachment A, 2) Permit deviation reports in accordance with Section XIII of Attachment A, and 3) reports of monitoring and recordkeeping required in lieu of monitoring as described above and in Section X of Attachment A.

R-5. The suggested language has been included in the revised Section XIV of Attachment A of the final permit.

C-6. Section XVII. Permit Reopening for Cause. As agreed upon for previous ADEQ title V permits, the following language should be added to this section, pursuant to A.A.C. R18-2-321.A.2: "Proceedings to reopen and issue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedure as apply to initial permit issuance and shall, except for reopenings under paragraph A above, affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable." Also, for clarity please add the following language from previous ADEQ title V permits: "Permit reopenings for reasons other than those stated in paragraph XVII.A. of this attachment shall not result in a resetting of the five year permit term."

R-6. The suggested language has been included in the revised condition IV.C of Attachment A of the final permit.

C-7. Section XIX. Facility Change Without Permit Revision. ADEQ has changed this section in previous title V permits as a result of discussions with EPA, as described below. Condition XIX.C is not consistent with A.A.C. R18-2-317. We understand that facilities make many routine small changes that may not seem to warrant notification under the operational flexibility provisions. We are concerned, however, with the permit condition in section XIX.C.1 that waives the notification requirement for some changes. Our concern is that ADEQ may not be made aware of changes that should be processed as a permit revision but that the source mistakenly believes it can make without a permit revision or notification to ADEQ. We also not that A.A.C. R18-2-317 as submitted to EPA for approval under title V does not contain such a provision for waiving the notification

requirement for certain changes. We believe that while it may be reasonable to waive the notification requirement in certain instances, it is not appropriate to include such a broad and potentially misleading provision in the permit. ADEQ should delete this section from the permit and instead discuss with the source, as guidance, those types of routine small changes that do not warrant notification. Specifically, remove the language "except as provided in C.1 below" and remove the entire section C.1 which lists "Examples of changes that do not require notification."

R-7. The suggested changes have been made in the revised Section XVII of Attachment A of the final permit.

C-8. Section XXIII. Permit Shield. For clarity, and as agreed upon for previous ADEQ title V permits, this condition should be changed to say "Compliance with the conditions of this permit shall be deemed compliance with the applicable requirements as of the date of permit issuance identified in Attachment B Section II.B of the permit." See comment # 11 below for changes to the list of applicable requirements. We also encourage ADEQ to add the following language agreed upon for previous ADEQ title V permits: "The permit shield shall not apply to any changes made pursuant to Sections XVIII.B or XIX of this Attachment." In order to limit the scope of the permit shield to what is fully captured by conditions in the permit, the list of applicable requirements to be added pursuant to comment # 10 below should be constructed carefully to only list the sections of each requirement which are captured by permit conditions and should be shielded against. For example, there are definitions in LL which it does not make sense to shield against or include. Therefore, specify that sections "x" through "x" are the applicable requirements in Subpart LL.

R-8. The suggested language has been included in the revised Section XXI of Attachment A of the final permit.

C-9. Section XXIV. Reference to and Citation of Applicable Requirements. This condition states that when only part of an applicable requirement is cited in the permit, "the balance of the applicable requirement retains applicability as it pertains to this permit." If we understand this condition correctly, not necessarily all of the provisions of an applicable requirement have been included in the permit. This approach is problematic with respect to the permit shield. As drafted the permit shield deems a source in compliance with an *entire* applicable requirement if the source complies with the permit. To correct this inconsistency, if the permit shield is retained in the permit condition XXIV should be removed from the permit.

R-9. Wherever applicable, the appropriate changes have been made in the citation of conditions throughout the final permit.

Comments on Specific Conditions (Attachment B):

C-10. Section II. Applicable Requirements. We have identified the following three problems with this section: 1) Sub-section A states "This permit identifies the origin of and authority for each term or condition and identifies any differences in form as compared to the applicable requirement upon which the term or condition is based." However, many of the applicable requirements upon which this permit is based are in the approved Arizona State Implementation Plan (SIP) and this permit does not cite any requirements from the SIP. If it is ADEQ's intent to streamline approved SIP requirements with current state rules, a demonstration for each streamlined condition must be given in a "Technical Support Document" for the permit. As described in White Paper # 2 ("White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program", March 5, 1996), multiple emission limits may be streamlined into one limit if that limit is at least as stringent as the most stringent limit. The streamlined monitoring, recordkeeping, and reporting requirements would generally be those associated with the most stringent emissions limit, providing they would assure compliance to the same extent as any subsumed monitoring. Please add the SIP requirements which are identified throughout these comments to the list of applicable requirements in Section B. Further, either include the SIP-requirements in the permit, or include a demonstration of streamlining as allowed by White Paper # 2 in a technical support document. Note that, as described in White Paper # 2, permitting authorities must include citations to any

subsumed requirements in the permit's specification of the origin and authority of permit conditions. 2) Please make corrections described in comments # 8 above to ensure the scope of the permit shield is properly limited. 3) ADEQ's minor new source review program which is currently approved into the SIP is an applicable requirement and should be listed as such. Specifically, SIP Rule R9-3-301 contains the requirement for a minor new source permit.

R-10 . State Implementation Plan (SIP) requirements have been included in the Section II of Attachment B of the final permit.

C-11. Section III. Emission Limitations. An applicable requirement (A.A.C. R9-3-402 - Open Burning) has been excluded from this section. Please add the following language and appropriate citation as included in previous ADEQ title V permits: "The Permittee shall not conduct open burning except when permitted to do so by either the Arizona Department of Environmental Quality (ADEQ) of the local officer delegated the authority for issuance of open burning permits." Also, are there any SIP requirements applicable to the carbon stripping heater? What assumptions were made about the emissions from this unit for the air quality modeling?

R-11. The Open Burning requirement has been added to the Section III of Attachment B of the final permit. There are no applicable SIP requirements for carbon stripping heater. In the modeling process, it was assumed that the three 1.2 million British thermal units burners are propane fired. AP-42 emission factors were applied (AP-42, Section 1.5).

C-12. Section III.A. Particulate Emissions. The title of this section ("Particulate Emissions") should be changed to "Particulate Emissions and Opacity."

R-12. The title of condition III.B of Attachment B has been changed to Particulate Emissions and Opacity.

C-13. Section III.A.1. Process Fugitive Emissions From Affected Facilities. The paragraph which lists the "affected facilities" should be amended to capture the entire definition given in NSPS Subpart LL, 40 CFR 60.380. Specifically, if any of the following exist at the source, they need to be added to the current list: bucket elevator, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, and railcar unloading station at the mill or concentrator.

R-13. All the affected facilities have been included in the permit (please refer to explanation 8 in Technical Support Document).

C-14. Section III.A.2. Other Point and Nonpoint Source Emissions. An applicable requirement has been excluded. The following language from SIP Rule R9-3-410 should be added: "Opacity of an emission from any non-point source shall not be greater than 40 percent measured in accordance with Arizona Testing Manual, Reference Method 9.." Alternatively, this requirement may be streamlined with the currently listed requirement with the appropriate demonstration in the technical support document (see comment #11 above). Regardless of the streamlining, the permit condition should clarify that "nonpoint sources' includes all fugitive dust.

R-14. Condition III.B of Attachment B has been revised in the final permit.

C-15. Section III.A.3. Off-Road Machinery Emissions. SIP Rule R-9-3-602 is an applicable requirement and contains this same limit. Please explain in the support document that the rules are identical, and add the SIP rule to the citation.

R-15. Condition III.B.4 of Attachment B has been revised and SIP rule has been cited in the final permit.

C-16. Section IV. Operational Requirements. This section lists operational requirements that are necessary to assure compliance with applicable requirements. Although none of the requirements currently listed in this section require any monitoring, our comments below describe many monitoring activities that must be added to this section (see Introduction to this enclosure for explanation). Therefore, please change the title of this section to "Operational and Monitoring Requirements." While it is possible to add a separate section to the permit containing only the monitoring requirements into one section given the complexity of the source.

R-16. Section IV of Attachment B has been renamed as Operational And Monitoring Requirements in the final permit.

C-17. Section IV.A.1. Open Areas. An applicable requirement in the SIP (Rule R9-3-404-Open Areas, Dry Washes, or Riverbeds) has not been fully captured in this condition. This rule more clearly defines the affected "open areas" as "a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area." It goes on to say the above described areas may not be "constructed, used altered, repaired, demolished, cleared, or leveled, or the earth moved or excavated, with out taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne." Please add this language to the permit condition and add SIP Rule R9-3-404 to the current citation.

R-17. The above language and SIP citation have been added to the condition IV.A.1 of Attachment B of the final permit.

C-18. Section IV.A.2. Roadways and Streets. An applicable requirement (SIP Rule R9-3-405 - Roadways and Streets) has not been fully captured in this condition. Please add a citation to this rule and include the following language: "No person shall cause or allow the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter form becoming airborne. In addition to the means listed below this subsection for controlling particulate matter, reasonable precautions shall include temporary paving and covering the load to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits."

R-18. The above language and SIP citation have been added to the condition IV.A.2 of Attachment B of the final permit.

C-19. Section IV.A.3. Materials Handling. An applicable requirement in the SIP (rule R9-3-406 - Material Handling) has not been fully captured in this condition. Please add the following language from the rule: "In addition to the means listed below this subsection for controlling particulate matter, reasonable precautions shall include the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods." Alternatively, in both the SIP rule described above and the state rule (A.A.C. R18-2-607) currently cited for this condition be included in a demonstration of streamlining in the support document and the entire condition (Attachment B.IV.A.3) be removed from the body of the permit. This streamlining demonstration would state: 1) For crushing, screening, handling, and conveying of the material, the requirements of the above two rules are captured by permit condition Part B.IV.C.1.a. 2) For transporting the materials, the requirements of the above two rules are captured by permit condition Part B.IV.A.2.

R-19. The above language and SIP citation have been added to the condition IV.A.3 of Attachment B of the final permit.

C-20. Section IV.A.4. Storage Piles. An applicable requirement in the SIP (Rule R9-3-407) has not been fully captured in this condition. Please include a citation to this SIP rule and add the underlined language to the existing condition: "The permittee shall not cause or allow the stacking, <u>piling, or other storage</u> of materials without taking reasonable precautions <u>such as chemical stabilization, wetting, or covering</u> to prevent excessive amounts

of particulate matter from becoming airborne. Stacking and reclaiming machinery shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents, as to prevent excessive amounts of particulate matter from becoming airborne." Also, a related applicable requirement for mineral tailings (SIP Rule R9-3-408) has been left out of the permit but must be included. This section of the permit is a logical place to add the requirement. The new language should state "No person shall cause, suffer, allow, or permit construction of mineral tailings piles without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions means wetting, chemical stabilization, revegetation or such other measures as are approved by the Director."

R-20. The above language and SIP citation have been added to the condition IV.A.4 of Attachment B of the final permit. The mineral tailing activities are post permit activities, therefore, the EPA suggested language for mineral tailing has not been included in the final permit.

C-21. Section IV.B.1 and 2. Control of Fugitive VOC Emissions. We are concerned that this condition needs associated monitoring and/or recordkeeping to make it enforceable. Please explain in a technical support document what processes it applies to for the benefit of inspectors, the source, and EPA.

R-21. A recordkeeping requirement has been added as condition IV.B.3 of Attachment B to make above condition enforceable. An explanation is provided in the Technical Support Document.

C-22. Section IV.C. Air Pollution Control. All requirements of this section are pursuant to AA.C. R18-2-306.A which requires the inclusion of operation requirements and periodic monitoring to assure compliance with all applicable requirements. Please add this citation. Also, no operational or monitoring requirements have been included to assure the diesel generators comply with the particulate matter emission limits given in Attachment B.III.D.1. Please add a requirement for regular maintenance on the diesel generators. We will provide more information on the minimum acceptable frequency in our final comments on this permit.

R-22 The above changes have been included in the condition IV.C.1.a of Attachment B of the final permit.

C-23. Section IV.C.1.a. Processing Equipment. Subsection (a) of this condition requires the use of water sprays at the primary and secondary crushers, screens, conveyor systems, transfer points, and storage piles at the stacker discharge points. The only specification given for the rate of water application required is "at a rate sufficient to prevent excessive amounts of particulate from becoming airborne." This operational requirement must be accompanied by monitoring to assure compliance with the 10% opacity limit placed on this equipment by 40 CFR 60, Subpart LL. We will provide more information on the minimum acceptable monitoring in our final comments on this permit.

R-23. The suggested changes have been included in condition IV.C.1.e and Section X of Attachment B of the final permit.

C-24. Section IV.C.1.b and c. Processing Equipment. Subsections (b) and (c) of this condition require the installation, operation, and maintenance of a fabric filter on the lime silo, carbon kiln, and dore furnace in accordance with the manufacturer's specifications. The testing requirement for particulate matter emissions from this baghouse are given in Part B.VII.A as an initial performance test and bi-ennial tests thereafter. Additional testing combined with more specific periodic monitoring and/or operation and maintenance requirements are necessary to ensure compliance with the particulate matter and opacity limits on this equipment pursuant to Part B.III.E.1. We will provide more information on the minimum acceptable monitoring in our final comments on this permit. Also, Attachment B.III.F limits emissions of sulfur dioxides and nitrogen oxides from the baghouse on the carbon kiln and dore furnace. Either add monitoring requirements to assure compliance with this limit, or provide a demonstration in the technical support document that the likelihood of violating these limits is so low that no monitoring is required.

R-24. The emissions of NOx and SO_2 are from the combustion of propane in the Carbon Kiln and Dore Furnace. Propane is a clean fuel with negligible sulfur and ash, therefore, we think present requirements are sufficient.

C-25. Section IV.C.2. Unpaved Roads. This section is "designed to reduce fugitive dust from the unpaved roads by 90%", based presumably on the assumption of 90% dust control used in the PM10 air quality modeling. In addition, the two other requirements for dust control on unpaved roads which this condition must assure compliance with are: 1) limit of 40% opacity in Part B.III.A.2, and 2) requirement to take "reasonable precautions to minimize particulate matter from becoming airborne" in Part B.IV.A.2. We are concerned that this condition is not enforceable as a practical matter and does not assure compliance with any of these three limits due to the discretion given to the source and ADEQ and the lack of visible emissions monitoring. Below we describe each of our concerns specifically:

1) Although the permit contains a chart specifying water application intensity and frequency, the permit also states "The application intensity can be decreased if the frequency is increased and vice versa." This statement is vague and allows unenforceable alternative watering practices which would not assure compliance with the 90% dust control limit. While we understand the source may desire adjustments to watering frequency and amount once in operation, such changes should be handled through a permit revision request to ADEQ in accordance with ADEQ's permit revision rules which require EPA review. Thus, please remove from the permit the statement allowing the application intensity to be decreased if the frequency is increased and vice versa (quoted above). Also, please provide documentation to EPA in the form of a technical support document on the calculation of the watering intensity and frequency numbers in relation to the 90% control assumption.

2) The next paragraph of this condition describes the remedies to be performed if "in the Department's judgement the water application intensities shown above do not achieve the goal of 90 percent dust control..." This paragraph only triggers remedies if 90% control is not achieved in the Department's judgement. The primary party responsible for assuring compliance with permit limits is the source. Therefore, remove the first sentence in this paragraph which begins "If in the Department's judgement the water application..." Requirements should be added for visual monitoring by the source. If this monitoring by the source (or inspections by ADEQ) show a violation of the dust control requirements, more testing and corrective action should be triggered. We will provide more specifics on this in our final comment letter.

The following language (partially quoted from language already in the permit) may also be included to allow the use of a chemical dust suppressant: "The permittee may use the chemical dust suppressant magnesium chloride ($MgC1_2$) as an alternative to the watering schedule listed above. If $MgC1_2$ is utilized, the permittee shall treat the unpaved roadways monthly with the chemical dust suppressant. The magnesium chloride application intensity shall be at least 1.34 pounds per square yard dissolved in water for application. Additionally, water shall be applied frequently enough to maintain the integrity of the chemically treated surface and assure compliance." Also, please proved documentation to EPA in the form of a technical support document on how these chemical dust suppressant intensity and frequency numbers were calculated.

3) The next paragraph of this section which begins "If the permittee can demonstrate that the application frequency of either water or chemical suppressant can be extended..." has the same problems with director and source discretion as described above. Please remove this whole paragraph to avoid bypassing the appropriate permit revision channels for such a change.

R-25. The suggested language corrections have been made in the condition IV.C.2 of Attachment B. Please refer to the Technical Support Document for the watering intensity and frequency numbers.

The suggested condition for chemical dust suppressant has been added in the condition IV.C.2 of Attachment B of the final permit.

C-26. Section IV.C.3. Blasting/Drilling. This condition gives the Permittee a choice of several listed options for controlling emissions from blasting and drilling. Please provide supporting information on how the dust shrouds would be used and their control efficiency, or remove this an option from this condition. We are concerned that this condition does not assure compliance with the assumptions made during air quality modeling, and will provide more specifics on this in our final comment letter.

R-26 The response on this concern was sent by the source to the EPA for review. EPA has not made any further comments on this issue.

C-27. Section IV.C.4. Liquid Petroleum Storage. The description of the control devices required in sub-sections (a)-(c) each includes the language "or equivalent as determined by the Director". This phrase makes this control requirement not enforceable as a practical matter by not allowing EPA or the public to weigh in on what is "equivalent". The simplest solution to this problem is to remove this phrase from each of the conditions mentioned so that the control options is spelled out in the permit.

R-27. The suggested change has been made by revising conditions IV.C.4.a through IV.C.4.c of Attachment B of the final permit.

C-28. Section VII.A. Testing Frequency. This condition requires initial performance tests followed by bi-ennial tests on two baghouses. This monitoring is not frequent enough to assure compliance with the permit. We will provide more specifics on the required monitoring, including the possibility of visual observations, parametric monitoring and source testing, in our final comment letter.

R-28. Since both the sources are very small, they are not expected to cause a violation. Additional periodic visual opacity observation, inspection, and maintenance requirements on the baghouses have been included in the final permit. ADEQ believes that this testing frequency is adequate.

C-29. Section VII.H.2. Test Failure. For clarity, this condition should specify what the source is required to do if R18-2-306.E or R18-2-310 *do* apply.

R-29. The revised condition VII.H.2 of Attachment B has been included in the final permit.

C-30. Section VIII. Operation and Maintenance Plan. Pursuant to A.A.C.R18-2-306.A.2, a permit must contain "Enforceable emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of issuance." To the extent that requirements in the operation and maintenance plan would be relied upon to assure compliance, they must be contained in the permit. This also provides the necessary opportunity for EPA and public review. Such requirements are described throughout this comment letter. The source can have these requirements in an "Operation and Maintenance Plan" as well, but the plan should clearly state that the source has to comply with all provisions of the permit.

R-30. The revised Section VIII of Attachment B has been included in the final permit.

C-31. Section IX.B. Recordkeeping Requirements. Three recordkeeping requirements have been omitted from or not fully captured by the permit:
1) Pursuant to 40 CFR 60.7.b. (NSPS General Provisions), the Permittee must maintain records of the occurrence and duration of any startup, shutdown and malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. Please add this requirement to the permit with the appropriate citation.
2&3) Pursuant to A.A.C R18-2-306.A.4.a, the Permittee must keep records of all required monitoring information. In this enclosure we have suggested many new visual emissions checks requirements. Please add, a

requirement to keep records, in accordance with Attachment A.XIV, of all visual emissions checks required in Attachment B.I.V. Also, add a requirement to keep records of all maintenance performed on diesel generators, pursuant to our comments above.

R-31. The revised condition IX.B of Attachment A has been included in the final permit.

C-32. Section X. Reporting Requirements. Pursuant to 40 CFR 60.4.b (NSPS General Provisions), where EPA has delegated authority to a state to implement and enforce a standard, as is the case for Subpart LL in Arizona, all requests, reports, applications, submittals, and other communications required pursuant to the NSPS must be submitted both to EPA and the delegated agency (ADEQ)

R-32. The suggested language has been included in Section XI of Attachment B of the final permit.

C-33. Section X.B. Reporting Requirements. This section requires the submittal of reports of any required monitoring at least every 6 months, but could be slightly confusing as written. The condition requires submittal of "reports of any required monitoring (recordkeeping data)...". Please change the underlined language in the parentheses in this condition to "(including but not limited to all recordkeeping activities performed in lieu of or to supplement monitoring)." Also, add the sentence "Such activities include all of the recordkeeping requirements listed in Attachment B.IX (Recordkeeping Requirements)."

R-33. The condition XI.B of Attachment B has been revised and included in the final permit.

C-34. Section X.E. Reporting Requirements. This section requires notice to the Department of purchase of the equipment listed in Attachment "C." To the extent that assumptions were made about control efficiency, etc. of equipment, these specifications should be permit requirements. For example, any assumptions made about the control of emissions from the baghouses should added as requirements in the permit.

R-34. The condition XI.E of Attachment B has been revised and included in the final permit.

Comments on Equipment List (Attachment C):

C- 35. Attachment C. Equipment List. The equipment list is incomplete and could mislead inspectors, regulatory agencies and citizens reviewing the permit, and possibly the source into thinking that only the listed equipment is subject to the requirements in the permit. The permit limits and requirements apply to all sources of emissions at the source, and the permit must list all equipment at the source to assure compliance with all applicable requirements. We have identified the following equipment mentioned in the source's application which should be added to the equipment list in Attachment C:

1) Drilling and blasting equipment used in the open pit mine, including control device such as water injection or pneumatic flushing device,
2) high pressure water sprays on crushing circuit,
3) fabric filter on the lime silo,
4) fabric filter on the carbon kiln and dore furnace,
5) electrowinning equipment and smelting furnace at the gold refinery plant (unless this is the same as the dore furnace?),
6) watering trucks (specify # and gallon size), and
7) any other equipment at the heap leach pad, process ponds, assay laboratory, or elsewhere at the source.

R-35. A revised Attachment C has been included in the final permit.

Responses to EPA's August 12, 1998 letter:

C-1. Periodic Monitoring: Affected facilities under NSPS, Subpart LL:
40 CFR 60, Subpart LL, places a 10% opacity limit on process fugitives from affected facilities. The emission points at this source to which the 10% opacity limit applies include the primary and secondary crushers, screens, conveyor systems, transfer points, and storage piles at the sacker discharge points. The requirement in Attachment B.IV.C.1(a) of the permit to use spray bars "to prevent excessive amounts of particulate from becoming airborne" does not assure compliance with the 10% opacity. Because compliance with the 10% emission limit is dependent on proper operation of the spraybars, the permit must require that all sprayheads are operable. Language such as following must be added to the existing condition IV.C.1.(a): "The permittee shall check all spraybars daily to assure no sprayheads are plugged and the water is being properly directed onto each emission point. The permittee shall confirm that all sprayheads are operable. The permittee shall keep records of the daily checks, including any maintenance or repairs performed on the spraybars". Additionally, the permits needs some visual monitoring to ensure the 10% opacity limit is not exceeded (due to inadequate water flow in the spraybars, varying moisture conditions of raw materials, etc.) Thus, the permittee must require a daily or weekly method 9. Note that a less frequent Method 9 may be acceptable if daily casual visible emission checks are required and if the process normally operates with little or no opacity so that abnormal emissions can be easily detected by a casual observer. Such an alternative condition would state: " The permittee shall observe the visible emissions from affected facility emissions point on a daily basis while the equipment is operating. The person performing the visual check shall record the time and whether the emissions from the affected facilities look 'normal' or 'abnormal'. 'Normal' shall be defined as the opacity observed during the initial performance test of the spray bars in accordance with NSPS, Subpart LL. If 'abnormal' emissions are observed, a Method 9 will be performed within 24 hours. If the method 9 performed showed opacity exceeding 10% from any affected emission point, the permittee shall adjust or repair the controls to reduce opacity to below 10% and keep records of such actions. The permittee shall also perform a scheduled monthly Method 9 test on all affected facilities."

R-1. The suggested changes have been included in condition IV.C.1.e and Section X of Attachment B of the final permit.

C-2. Fabric Filters on the Lime Silo, Carbon Kiln and Dore Furnace:
To assure the compliance with the 40% opacity limit and the process weight particulate matter limit, additional monitoring is needed. Currently, Attachment B.IVC.1.(b) and (c) requires that the fabric filters be "operated and maintained in accordance with the manufacturer's specification. This conditions should be amended to clarify that this operation and maintenance should be performed weekly and records should be kept of each inspection and any activity performed. The weekly operation and maintenance should include a check of all bags for tears and holes. Additionally, this permit condition should require daily or weekly visual emissions check be performed when the fabric filter is operating. If any visible emissions are observed during this daily or weekly check, a Method 9 should be done on the filter within 24 hours. We would like to have further discussion with ADEQ to determine if pressure drop would be representative of baghouse performance and should thus be recorded weekly.

The baghouses from the carbon kiln and the dore furnace also emits mercury, to which an Arizona Ambient Air Quality Guidelines applies. The air quality modeling for this source assumed 90% control efficiency of mercury of the baghouse. Please provide to EPA in a technical support document more information on the source of this control efficiency assumption and how it is representative of this facility. The application cites "Stack testing results, NV BAQ." if substantial evidence cannot be provided as to the applicability of the 90% control emission factor, initial source testing should be required by the permit.

R-2. The suggested changes have been included in conditions IV.C.1.c and IV.C.1.d, Attachment B of the final permit.

C-3. Fugitive Emissions from Unpaved Roads:

Although emissions from the unpaved road are only limited to 40% opacity by the SIP, 90% control efficiency was assumed in the PM10 air quality modeling that showed impacts just below the NAAQs. Our attached comments send to ADEQ on August 6, 1998 make many suggestions to improve the enforceability of the requirement for the road watering and chemical dust suppressants. However, because of the variation in the rainfall, wind conditions, truck traffic, etc. and because fugitive emissions from cannot be practically tested, the permit must also include an objective means of determining whether the dust control methods are effective. Therefore, the permit should include an opacity limit for the haul roads, and require periodic monitoring of opacity. Because, it is likely that 90% control correlates to an opacity much lower than the 40% required by the SIP, we recommend that a maximum opacity of 10% be included in the permit. Regardless of the opacity limit, the permit must require the permittee to perform a weekly Method 9 on each road during operating hours, record the results, and document any increases to the watering schedule to reduce opacity to the limit in the permit.

R-3. Above comments require performing Method 9 tests on each road during operating hours on a weekly basis. However, Method 9 on haul roads is virtually impractical. After more discussion with EPA, condition IV.C.2 of Attachment B has been included in the final permit.

C-4. Diesel Generators:
The permittee does not assure compliance with the particulate matter standard for the diesel generators. As described in our earlier attached comments, the permit must establish a schedule for a regular maintenance to be performed on the diesel generators. Please add this requirement to the "Operational and Monitoring Requirements" section (Attachment B) of the permit. We recommend maintenance to be required monthly, or an schedule based on manufacturer's recommendations and engine size. Also, add a requirement to record the date of the maintenance check and the activities performed.

R-4. The suggested changes have been included in condition IV.C.1.a of Attachment B of the final permit.

C-5. Drilling Emissions:
The source's application states that 85% control efficiency was assumed for drilling emissions. In our attached comment sent earlier, we requested information on the use of dust shrouds and suggested possibly removing this from the permit as a control option. Even with these changes made, we are uncomfortable with the use of emission factor control assumption that is solely an "estimate" (see source's application, Appendix A, Table VI). While we recognize it may not be possible to obtain a more precise control efficiency assumption, this points to the need for ambient monitoring of impacts as described on our letter above.

R-5. The Section XII of Attachment B to address ambient monitoring concerns has been included in the final permit.

C-6. Air Quality Modeling:
The source made several assumption in developing the emission inventory used as input for the air quality modeling. For example, the source assumed that only 1/6 of the heap leach pad area and 1/3 of the waste storage area was active in calculating PM10 emissions. Also, the source assumed 90% control of fugitives dust from roads and the crushing circuit. Drilling emissions were assumed to be controlled by 85%. Many of these assumptions included estimates of the moisture content of the roads and raw materials. All of these assumptions were relied upon in modeling the impacts levels below the NAAQs, and therefore, should be captured in enforceable permit conditions. However, because it is difficult for some of these assumptions to be captured in an enforceable permit condition, we recommend should atleast be "checked" using ambient monitoring of PM10.

Because the emissions from this source do not exceed 250 tons/year of any pollutant, it does not trigger the Prevention of Significant Deterioration (PSD) permitting process and is thus not required to evaluate effects on the PSD increment. Still this source consumes PSD increment in any attainment areas for which the minor source baseline date has been triggered, and this information will come to light in the air quality analysis in a

future major source PSD application, or in monitoring. The minor source baseline date for PM10 increment of 30 micrograms/m^3 is being exceeded by Yarnell Mining Company's impact of 149.8 micrograms/m^3 (24-hour average). ADEQ does have the responsibility to protect the increments and the NAAQs, and should such impacts come to light in the future, they would have to be mitigated.

R-6. The Section XII of Attachment B for ambient monitoring has been included in the final permit to address above PM10 concerns.
This source does not trigger PSD, therefore, increment consumption is not applicable to this minor source.